

(12) UK Patent Application (19) GB (11) 2 364 483 (13) A

(43) Date of A Publication 23.01.2002

(21) Application No 0016251.1

(22) Date of Filing 30.06.2000

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(51) INT CL⁷
H04Q 7/22 , G06F 17/30 , H04Q 7/32

(52) UK CL (Edition T)
H4L LEUY LRAB L205 L207
G4A AUDB

(56) Documents Cited
GB 2350973 A GB 2350213 A
EP 0993165 A2 EP 0866590 A2
WO 98/35468 A2 WO 97/46955 A
WO 97/44747 A1 US 6023727 A

(58) Field of Search
UK CL (Edition S) G4A AUDB , H4L LDGR LDGX
LDPPX LECCP LED LEP LESF LEUF LEUG LRAA LRAB
INT CL⁷ G06F 3/033 17/30 , H04L 12/28 29/06 , H04Q
7/22 7/32
ONLINE: WPI, JAPIO, EPODOC

(54) Abstract Title
Accessing more than one item of information from a remote server

(57) A user is presented 502 with a plurality of items (30, fig. 4) that can be requested from a remote server, (e.g. internet) but rather than make the user wait for the downloading and display of a first requested item before a request for a second item can be made, the invention enables the user to select a further item from the list while the first request is being processed. The invention comprises monitoring 504 a user interface for the selection of an item of information from a plurality of items and in response to this selection, a request 506 is sent to a remote server. Whilst waiting for the receipt of this information, monitoring 508 is carried out for subsequent selection of a further item and in response to a subsequent selection, a further request 506 is sent to a remote server. While the user is viewing the list of items, a visual or audible indicator may notify the user of the receipt of an item and a list of received items may be provided. In a second invention, when a user is presented with a list of items, from which the user can select an item to send a request to a remote server, a request (606, fig 6) for all the items of information is sent to one or more servers. Thus when a user selects an item (608, fig 6), the request need only be sent to a remote server if the information has not yet been received in which case the request for all the information may be cancelled. Preferably, the user uses a portable device such as a WAP phone, PDA, palm computer or laptop.

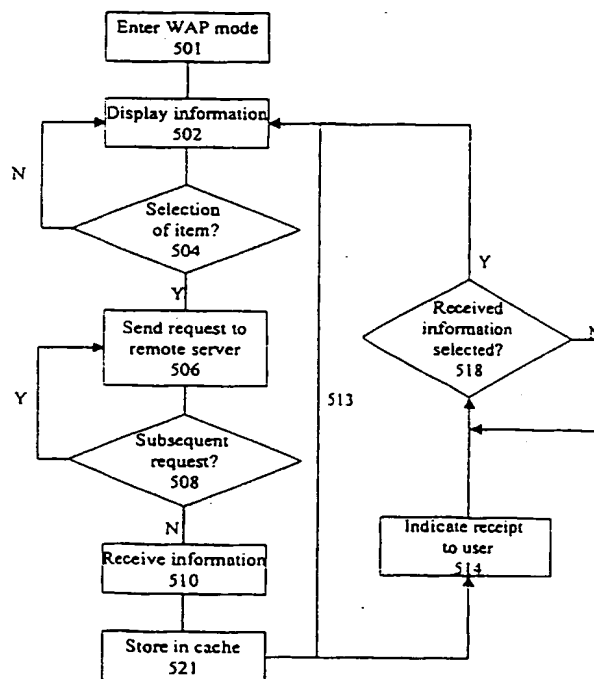


Fig 5

GB 2 364 483 A

1/5

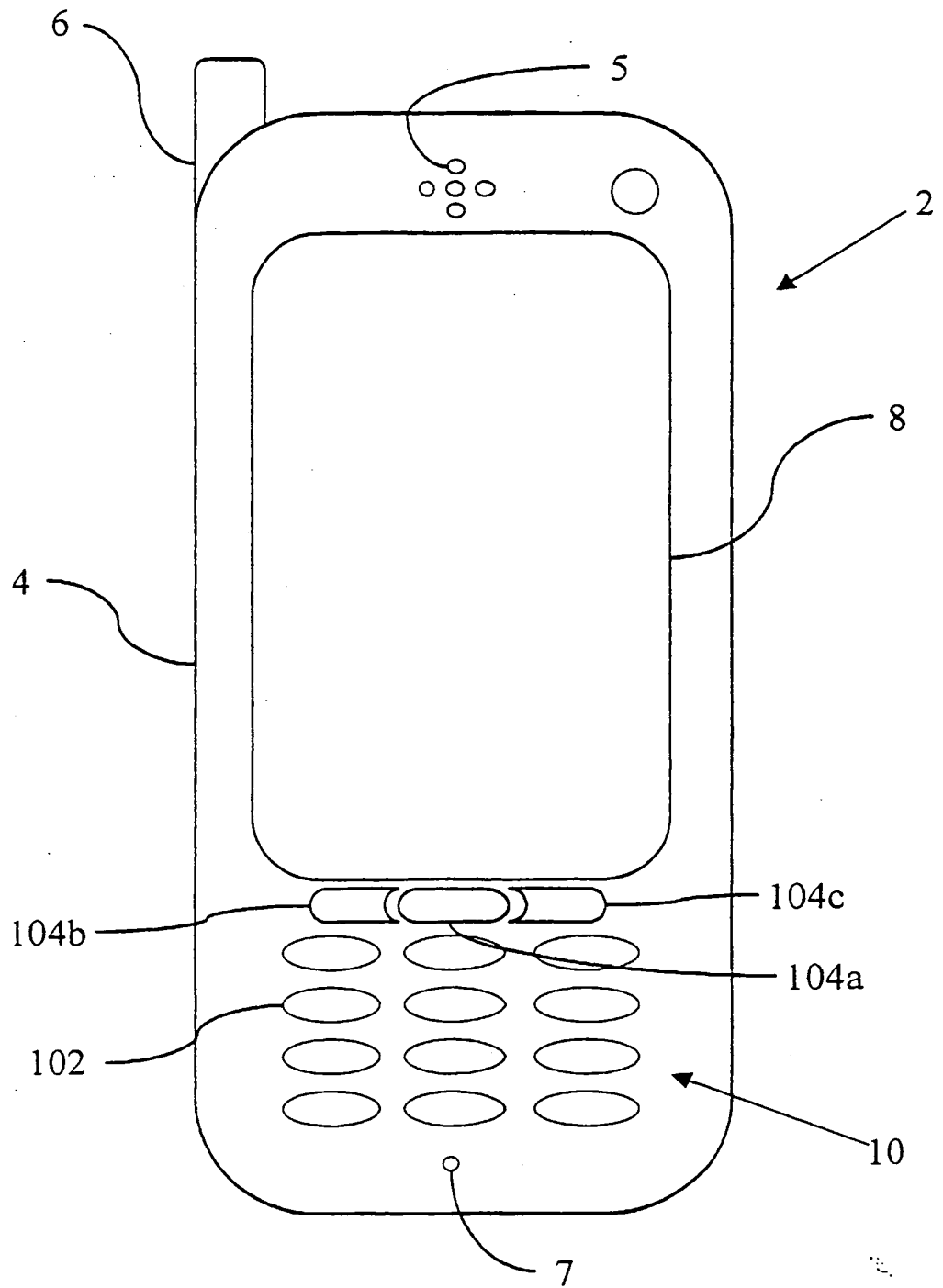


Fig 1

2/5

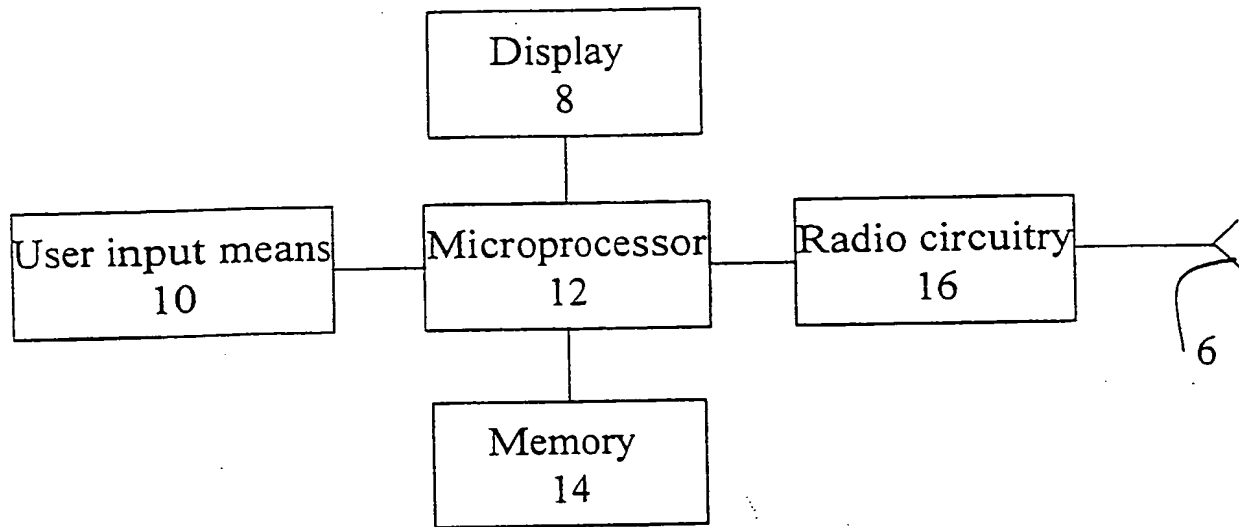


Fig. 2

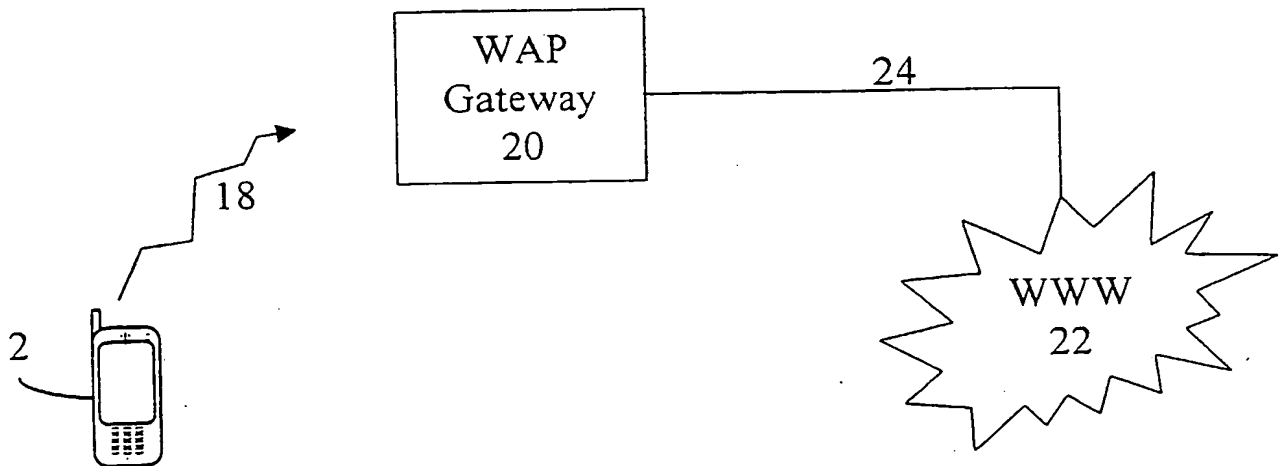


Fig. 3

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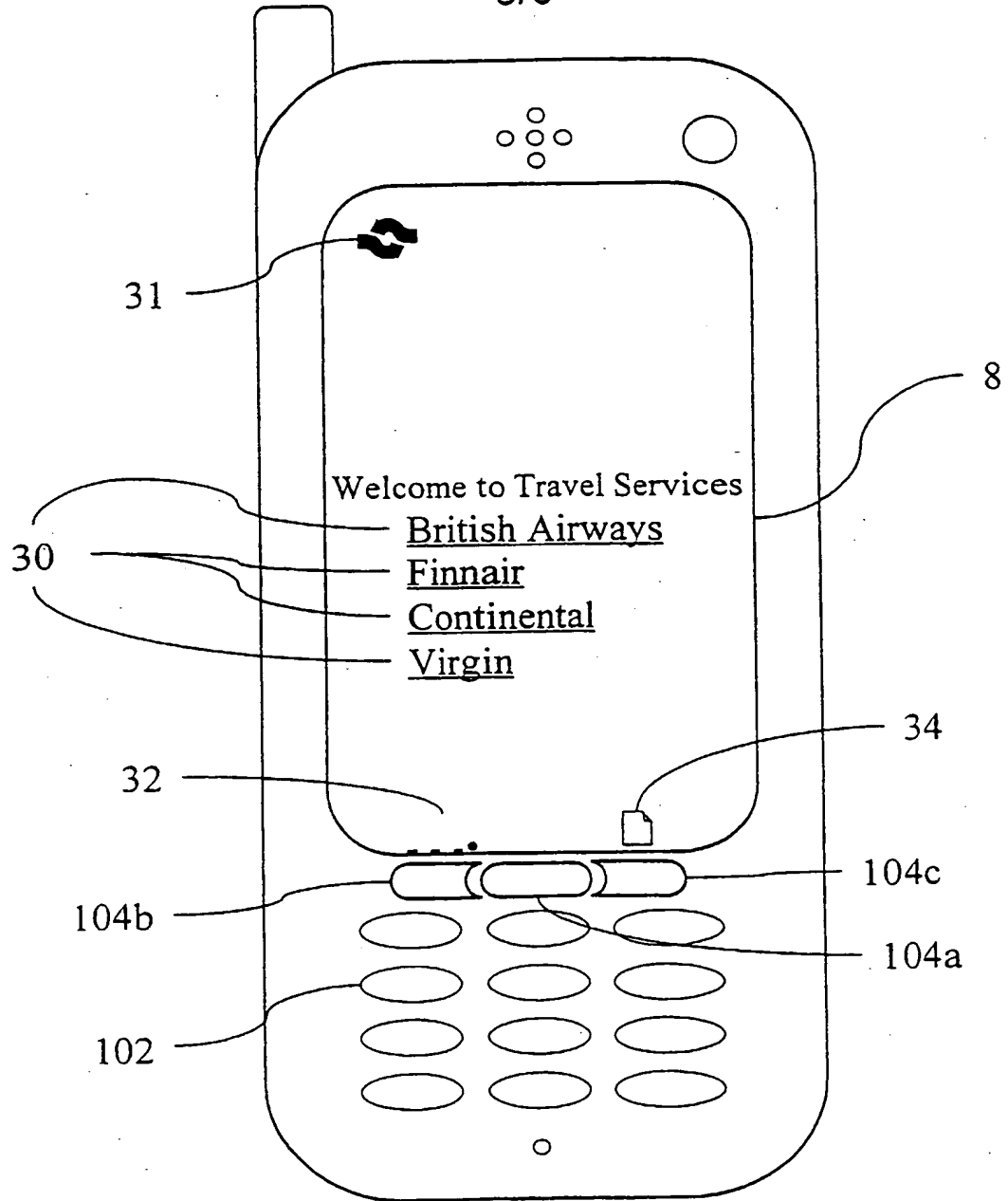


Fig 4

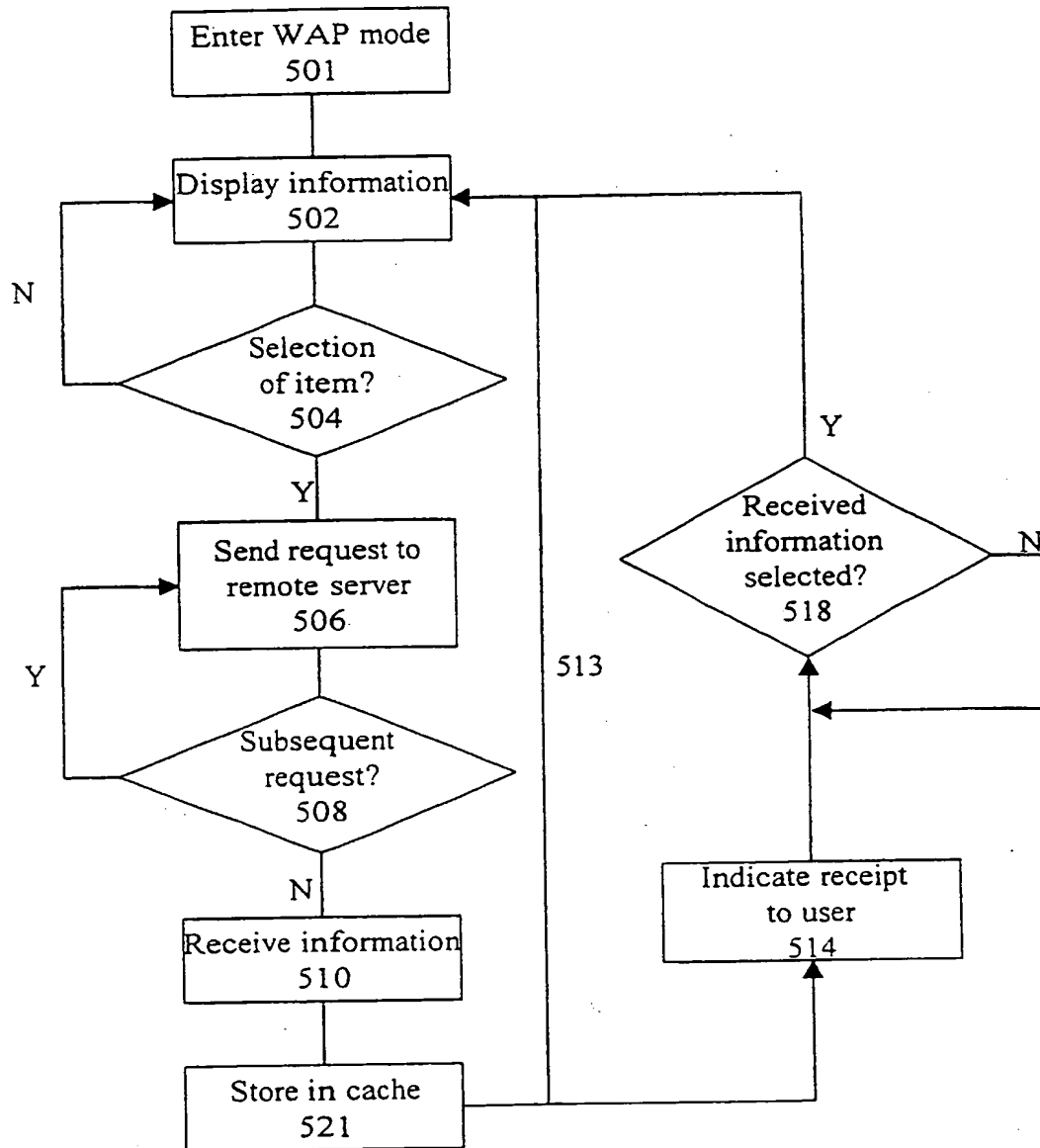


Fig 5

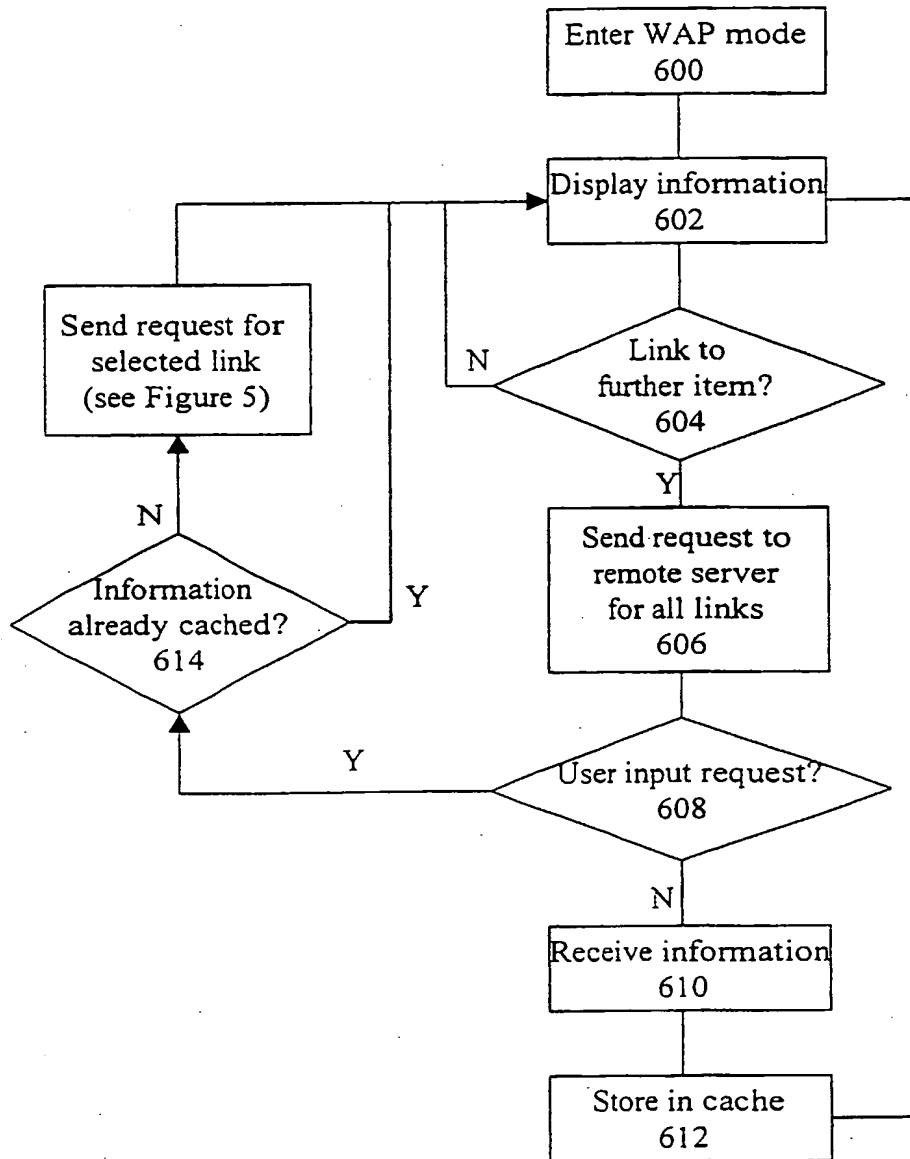


Fig 6

A method of accessing remote data

This invention relates to a method of accessing remote data and a portable
5 wireless device capable of displaying information to a user.

The use of the internet (and in particular the World Wide Web (WWW)) is well known. In the WWW a transfer protocol called Hyper Text Transfer Protocol (HTTP) is used to transfer information from a remote internet server to a
10 device on which the information is displayed e.g. the monitor of a PC.

Making the contents of the WWW available to portable devices that typically have a much smaller display than that of a PC has been the recent task of the Wireless Application Protocol (WAP) forum.

15

One WAP-enabled device already on the market prior to the filing date is the Nokia® 7110 phone. A user can use this phone to access information services. When waiting for a requested item of information, a user is presented with a screen that simply informs the user that the device is waiting
20 for information. Since the data rates used in WAP at the current time are relatively low (of the order of 14.4 kbit/s) this may be displayed for a significant period of time, which may be annoying to a user.

In accordance with the invention there is provided apparatus and a method of
25 accessing remote data as set out in the appended claims. In a first aspect of the invention there is provided a method of accessing remote data from a portable device, comprising:

monitoring a user interface of the portable device for the selection of an item of information from a plurality of items of information presented to the

user of the portable device on a display, each said item of information being associated with further information stored on a remote server;

in response to the selection of an item of information from the plurality of items of information, sending a first request to a remote server for said
5 associated information;

waiting for the receipt of said associated information in response to said first request;

whilst waiting for the receipt of said associated information, monitoring for a subsequent selection of a further item of information from said plurality of
10 items of information and, in response to a subsequent selection, sending a request for the associated information of said further item of information to a remote server.

Thus a user is still able to browse the information originally displayed to the
15 user and to request further information whilst waiting for the response to the first request.

Preferably, on receipt of associated information in response to a request, a user is presented with an indicator to indicate this receipt. This indicator may
20 take the form of an icon, which may be presented on the display together with the plurality of items of information. Alternatively the indicator may comprise the momentary display of the received associated information.

Preferably the information associated with the further request is presented to
25 the user in response to an input by the user.

Preferably when the associated information is received it is stored in a memory. A list of the selected items of information for which the associated information has been received may be formed and displayed on the display of
30 the device. The device may then monitor for a selection of an item of

information from the list and in response retrieve from memory the further information associated with the item selected from the list. Preferably the list is ordered in order of request or in reverse order of request.

- 5 On presentation of the plurality of items of information to the user a request may be sent to the remote server for the associated information for all of the items of information presented to the user. When a user selects an item of information from the plurality of items of information, a check may be made to ascertain whether the associated information of the selected item has already
10 been received by the portable device. When the associated information of the selected item has not already been received by the portable device, a request is sent to the remote server for the information associated with the selected item. Preferably the request for the associated information for all of the items of information is cancelled when a request for the information associated with
15 the selected item is sent.

The invention also relates to a portable device having a user interface and a display, the device comprising

- means to monitor the user interface of the portable device for the
20 selection of an item of information from a plurality of items of information presented to the user of the portable device on the display, each said item of information being associated with further information;

- a processor that is arranged, in response to the selection of an item of information from the plurality of items of information, to send a first request to
25 a remote server for said associated information and to wait for the receipt of said associated information in response to said first request;

the processor being further arranged to monitor, whilst waiting for the receipt of said associated information, for a subsequent selection of a further item of information from said plurality of items of information and, in response

to a subsequent selection, to send a request for the associated information of said further item of information to a remote server.

Preferably the device is a portable telecommunications device and/or
5 conforms to the Wireless Application Protocol.

According to a third aspect of the invention, there is provided a browser for accessing data from a remote server, the browser being arranged to:

10 monitor a user interface for the selection of an item of information from a plurality of items of information presented, each said item of information being associated with further information stored in a remote server;

in response to the selection of an item of information from the plurality of items of information, to send a first request to a remote server for said associated information;

15 wait for the receipt of said associated information in response to said first request;

whilst waiting for the receipt of said associated information, to monitor for a subsequent selection of a further item of information from said plurality of items of information and, in response to a subsequent selection, to send a
20 request for the associated information of said further item of information to a remote server.

According to a fourth aspect of the invention there is provided a method of accessing remote data, comprising:

25 monitoring a user interface for the selection of an item of information from a plurality of items of information presented to the user on a display, each said item of information being associated with further information stored on a remote server;

in response to the selection of an item of information from the plurality of items of information, sending a first request to a remote server for said associated information;

on receipt of said associated information in response to said first request displaying the associated information on the display;
wherein on presentation of the plurality of items of information to the user a request is sent to a remote server or servers for the further information associated with all of the items of information presented.

10 The invention will now be described by way of example only with reference to the accompanying drawings in which:

Figure 1 shows an example of a portable device in which the invention is incorporated;

Figure 2 is a schematic drawing of the electronics of the device that concern
15 the invention;

Figure 3 shows a wireless communication system;

Figure 4 shows an example of the user interface presented to a user on a display of a portable electronic device;

Figure 5 is a flow chart illustrating a first embodiment of the invention;

20 Figure 6 is a flow chart illustrating a second embodiment of the invention.

Figure 1 shows an example of a portable device in which the invention can be incorporated. The device shown is a portable radio telecommunications device, a radio telephone 2. However the invention is applicable to other
25 devices such as PDAs, palm computers, laptops etc. The radio telephone has a main housing 4 that houses the usual components of a radio telephone e.g. a speaker 5, an antenna 6, a microphone 7, a display 8, a user interface (UI) 10, and the electronics of the device (not shown). The electronics comprise (not exclusively) a transceiver, baseband circuitry and a processor
30 for controlling the operation of the device. In the example shown the user

interface is a keypad having alphanumeric keys 102 and control keys 104. However the user interface 10 may be of any form e.g. a joystick, a roller key, a voice interface, a touchscreen etc.

5 Figure 2 is a schematic drawing of the electronics of the device that concern the invention. Other electronics may also be provided. A microprocessor 12 is connected to the display 8 and the user interface 10. It is also connected to RAM 14 which is also known as cache memory and to radio circuitry 16 which is responsible for the radio operation of the device.

10

In use, the microprocessor 12 controls the input to and output from the memory 14, the information displayed on the display 8, the action of the device in response to inputs from the user interface 10, the radio circuitry 16 etc.

15

The device 2 is capable of providing an information service to the user of the device. An example of such a service is akin to that of the World Wide Web (WWW). At the time of writing, this service is provided by means of the developing Wireless Application Protocol (WAP), which provides information
20 coded in Wireless Mark-up Language (WML). The invention is not intended to be limited to this protocol or language and these will be used for exemplary purposes only. An example of such a device is the Applicant's WAP compliant phone, the 7110 model.

25 As shown with reference to Figure 3, in use a WAP terminal 2 communicates by radio signals 18 with a WAP Gateway 20. The WAP Gateway is connected to the Internet (or World Wide Web (WWW)) 22 via a connection 24. The WAP Gateway 20 translates requests from WAP devices 2 from WAP into HTTP (Hyper-text Transfer Protocol), the protocol used for the

WWW. The radio signals 18 conform to WAP and the signals sent via connection 24 conform to HTTP.

5 The operation of the device when a user wishes to access information provided by WAP will now be described. The user selects the WAP service by selecting it from a main menu displayed on the display 8. This causes the device 2 to dial up the telephone number of the WAP Gateway 20. Once this connection is established an icon 31 is displayed (see Figure 4) to indicate to a user that a connection is in existence. Information received from the WAP
10 Gateway 20 is then presented on the display 8, as described below.

As shown in Figure 4 information is displayed on the display 8 in the form of a plurality of items of information 30, each of which may be selected via the UI
15 selectable are underlined.

A user uses the user interface 10 to navigate between the selectable items 30. For instance, if the user interface is a keypad the navigation keys 104 are used to highlight each of the selectable items 30 in turn and to select an item.

20

Figure 5 is a flow chart illustrating the mode of operation of a browser according to a first embodiment of the invention. Once a connection to the WAP gateway 20 is made (501), information is displayed (502) on the display 8 (for instance as shown in Figure 4). The user scrolls through the items of
25 information for instance using a bi-directional control key 104a. Once the item that a user wishes to select (e.g. "British Airways") is highlighted, it is selected (504) in response to a key press by the user on the keypad. This keypad press is detected by the microprocessor 12 which then sends (506) a WAP request to the WAP Gateway 20 for the information associated with the
30 selected item of information ("British Airways"). The WAP Gateway 20 then

translates the WAP request into an HTTP request and sends this to the Internet 22.

5 Meanwhile the microprocessor maintains the information as shown in Figure 4 on the display 8 and continues to monitor (508) the user interface 10. An icon 32 is displayed at the bottom of the screen to indicate to a user that a request is being processed. A user can continue to browse the information displayed, whilst the request is being actioned. The microprocessor continues to monitor (508) the user interface 10 to detect the selection of another item of information from the plurality of items of information 30 shown on the screen. 10 When a subsequent selection is made by the user (e.g. "Finnair"), the microprocessor 12 sends a subsequent WAP request (506) for the associated information to the WAP Gateway. If the user wishes to cancel the outstanding request(s), the control button 104b adjacent the icon 32 is operated.

15

The device can therefore support more than one request at a time. In the above example, two requests are sent to the WAP Gateway, one for the first item of information (e.g. British Airways) and one for the second selected item of information (e.g. Finnair). The user is able to continue to browse the 20 plurality of items of information 30 whilst these requests are being processed and to make further selections.

When the requested items of information are received (510) by the device, the microprocessor 20 stores (512) the items in the memory 14. The user is then 25 informed of the receipt of the received information.

The requested items of information may be displayed (513, 502) as soon as they are received, so overwriting the information currently displayed. However this may be irritating to the user who may be browsing or about to 30 select a further item of information on the current screen.

It is preferred therefore that a user is provided (514) with an indication that the information has been received. This may comprise the unobtrusive provision of an icon on the screen (e.g. icon 34) which a user may select by means of the UI 10. Alternatively, the received information may be momentarily displayed to the user (i.e. the received information is displayed to a user for an instant) and then the displayed information reverts to the information from which the item had been selected. This embodiment means that a user is informed of the arrival of the received information but the user's current browsing is not interrupted significantly. Preferably an icon 34 is also displayed and the user accesses the received information by operation of the key 104c associated with the icon. Alternatively an audio indicator may be provided to indicate the receipt of requested information.

Once the user is ready to view the received information, the user presses an appropriate control key e.g. key 104c next to the icon 34. Once this is detected (518) by the microprocessor 12, the received information stored in cache memory 14 is displayed on display 8. Each item of received information may be displayed to the user in turn upon successive operation of the key 104c. Alternatively the received items of information may be presented as a list of requested items, i.e. a list of the items of information for which further information is cached in memory 14. The list in the example discussed above would consist of "British Airways" and "Finnair". The items are displayed to the user and the user selects the item to be displayed. The processor 14 then retrieves from memory 14 the further information associated with the selected item.

The list of items of information for which further information is cached in memory 14 may be ordered in the order of request, in the order of receipt, or preferably in the reverse order of request i.e. with the most recently requested

associated information being listed first. If only one received item of information is stored in the cache this may be immediately displayed to the user on activation (518) of the key 104c.

- 5 The associated information received and displayed may of course include a further plurality of items of information associated with further information on a remote server.

10 According to another aspect of the invention, a device automatically requests the download of the information associated with displayed items as soon as the items are displayed. This is illustrated in Figure 6. When the WAP option is selected (600) the device dials up the WAP Gateway 20 which then sends "home page" information to the device which is then displayed (602) on the display 8, for instance as shown in Figure 4. As this information is received,
15 the microprocessor checks the information for further linked information (604). If such further links exist, the microprocessor automatically sends a request (606) to the WAP Gateway requesting the information associated with all the selectable items in the received information. As this information is received (610) by the device it is stored (612) in the cache 14.

20 When a user selects (608) a link from the displayed information, the microprocessor checks (614) to determine whether the selected information is already stored in the cache 14. If it is, the selected information is displayed 602. However, if the device has not yet received the selected information, the
25 device may operate as already described with reference to steps 506 onwards of Figure 5. The WAP request for the information associated with all the links is cancelled and replaced with a request for the information specifically requested.

It is also envisaged that the content itself could be marked with an attribute "preloadable" to indicate whether the associated information is pre-loadable e.g. in WML this may be represented as follows:

```
<ahref="http://www.wgames.com/game1.wml" preloadable="yes">Game1</a>
```

5

Thus when a device receives a WML page with the above information (or link), the device will read the attribute "preloadable" and automatically send a request for the associated information "game1.wml", if the device is set up to operate in this way. The item "Game 1" is presented to a user. Additionally
10 the WAP server/gateway 20 may be arranged to send automatically a request to the server for the associated information when such an attribute is received by the gateway. This associated information may then be sent on to the destination device automatically or when the gateway 20 receives a request for the further information from the destination device.

15

These various methods of handling the received information may be either pre-set (so that the device can only operate in a single way) or the user may be able to choose the method (513, 514, 600-614 etc.) of handling the received information. This latter option may be implemented by providing
20 various options in a 'Profiles' menu on the device. The user can then select the option they prefer. This may be provided as a default "WML" page in the device. The user may be able to change the settings e.g. set the size of the cache memory, select whether or not to use the cache, set the time period for which the cached information is stored, set the type of information that may be
25 cached (image, text, graphics, script etc.). A traditional web browser for a PC is capable of interpreting the received HTML and displaying it. However a WAP/WML browser can only display received information and cannot interpret it in the same way. The interpretation is carried out by the WAP gateway 20. The sending of multiple requests, as suggested by the invention, does not
30 consume significantly more resources in the device.

Claims

- 1 A method of accessing remote data from a portable device, comprising:
monitoring a user interface of the portable device for the selection of an
5 item of information from a plurality of items of information presented to the
user of the portable device on a display, each said item of information being
associated with further information stored on a remote server;
in response to the selection of an item of information from the plurality
of items of information, sending a first request to a remote server for said
10 associated information;
waiting for the receipt of said associated information in response to
said first request;
whilst waiting for the receipt of said associated information, monitoring
for a subsequent selection of a further item of information from said plurality of
15 items of information and, in response to a subsequent selection, sending a
request for the associated information of said further item of information to a
remote server.
2. A method according to claim 1 further comprising, on receipt of
20 associated information in response to a request, presenting to a user an
indicator to indicate this receipt.
3. A method according to claim 2 wherein an icon is presented on the
display together with the plurality of items of information.
- 25 4. A method according to claim 2 or 3 wherein the indicator comprises the
momentary display of the received associated information.

5. A method according to any preceding claim wherein the information associated with the further request is presented to the user in response to an input by the user.

5 6. A method according to any preceding claim further comprising receiving associated information and storing the associated information on a memory, forming a list of the selected items of information for which the associated information has been received, displaying the list on the display of the device, monitoring for a selection of an item of information from the list
10 and retrieving from memory the further information associated with the item selected from the list.

7. A method according to claim 6 wherein the list is ordered in order of request.

15

8. A method according to claim 6 wherein the list is ordered in reverse order of request.

9. A method according to any preceding claim wherein on presentation of
20 the plurality of items of information to the user a request is sent to the remote server for the associated information for all of the items of information presented to the user.

10. A method according to claim 9 wherein, when a user selects an item of
25 information from the plurality of items of information, a check is made to ascertain whether the associated information of the selected item has already been received by the portable device and, when the associated information of the selected item has not already been received by the portable device, sending a request to the remote server for the information associated with the
30 selected item.

11. A method according to claim 10 further comprising cancelling the request for the associated information for all of the items of information when a request for the information associated with the selected item is sent.

5

12. A portable device having a user interface comprising input means and a display, the device comprising

means to monitor the user interface of the portable device for the selection of an item of information from a plurality of items of information presented to the user of the portable device on the display, each said item of
10 information being associated with further information;

a processor that is arranged, in response to the selection of an item of information from the plurality of items of information, to send a first request to a remote server for said associated information and to wait for the receipt of
15 said associated information in response to said first request;

the processor being further arranged to monitor, whilst waiting for the receipt of said associated information, for a subsequent selection of a further item of information from said plurality of items of information and, in response to a subsequent selection, to send a request for the associated information of
20 said further item of information to a remote server.

13. A portable device according to claim 12 wherein the device is a portable telecommunications device.

25 14. A portable device according to claim 12 or 13 wherein the device is WAP device.

15. A browser for accessing data from a remote server, the browser being arranged to:

monitor a user interface for the selection of an item of information from a plurality of items of information presented, each said item of information being associated with further information stored in a remote server;

in response to the selection of an item of information from the plurality
5 of items of information, to send a first request to a remote server for said associated information;

wait for the receipt of said associated information in response to said first request;

whilst waiting for the receipt of said associated information, to monitor
10 for a subsequent selection of a further item of information from said plurality of items of information and, in response to a subsequent selection, to send a request for the associated information of said further item of information to a remote server.

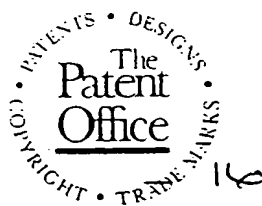
15 16. A method of accessing remote data, comprising:

monitoring a user interface for the selection of an item of information from a plurality of items of information presented to the user on a display, each said item of information being associated with further information stored on a remote server;

20 in response to the selection of an item of information from the plurality of items of information, sending a first request to a remote server for said associated information;

on receipt of said associated information in response to said first request displaying the associated information on the display;

25 wherein on presentation of the plurality of items of information to the user a request is sent to a remote server or servers for the further information associated with all of the items of information presented.



INVESTOR IN PEOPLE

Application No: GB 0016251.1
Claims searched: 1-8, 12-15

Examiner: Anita Keogh
Date of search: 30 January 2001

Patents Act 1977 Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:
UK Cl (Ed.S): G4A (AUDB), H4L (LDGX, LED, LESF, LEUF, LEUG, LRAA, LRAB)
Int Cl (Ed.7): G06F (3/033, 17/30), H04Q (7/22, 7/32)
Other: Online: WPI, EPODOC, JAPIO

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X, E, A	GB 2350213 A (IBM) see whole document, especially abstract, page 2 lines 35-41, figures 3a, 3b and also page 2 lines 13-31.	X: 1, 2, 3, 5, 6, 7, 12, 15 A: 9, 10, 16
X	EP 0993165 A2 (PHONE COM) - see whole document, especially page 3 lines 29-32, page 16 lines 39-41 and figures 2b, 3, 4	1, 2, 3, 5, 12, 13, 14, 15 at least
X	WO 97/46955 A1 (AT&T) see whole document especially abstract, page 3 line 25 - page 4 line 2, page 5 line 12 - page 6 line 27 and figure 2	1, 2, 3, 5, 12, 15

X Document indicating lack of novelty or inventive step
Y Document indicating lack of inventive step if combined with one or more other documents of same category.
& Member of the same patent family

A Document indicating technological background and/or state of the art.
P Document published on or after the declared priority date but before the filing date of this invention.
E Patent document published on or after, but with priority date earlier than, the filing date of this application.



INVESTOR IN PEOPLE

Application No: GB 0016251.1
Claims searched: 16

Examiner: Anita Keogh
Date of search: 14 March 2001

Patents Act 1977 Further Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.S): G4A (AUDB), H4L (LDGR, LDGX, LDPPX, LECCP, LED, LEP, LESF, LEUF, LRAA, LRAB)

Int Cl (Ed.7): G06F (17/30), H04L (12/28, 29/06), H04Q (7/22, 7/32)

Other: Online: WPI, JAPIO, EPODOC

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X, E	GB 2350973 A (NOKIA) see whole document, particularly page 12 lines 20-33 and fig. 8	16
X	EP 0866590 A2 (MOTOROLA) see column 9 lines 6-26	16
X	WO 98/35468 A2 (SLOTZNICK) see whole document, especially page 31 line 20 to page 32 line 12	16
X	WO 97/44747 A1 (BT) see whole document	16
X	US 6023727 (SAKSENA) see column 1 lines 40-59	16

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.